

Claims:

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1. An isolated polynucleotide molecule encoding an NPY-Y7 receptor or a functionally equivalent fragment thereof, wherein the encoded NPY-Y7 receptor is characterised by the N-terminal amino acid sequence:

MX₁X₂MX₃EKWDX₄NSSE (SEQ ID NO: 1),
wherein X₁, X₂, X₃ and X₄ are selected from codable amino acids.

10 2. A polynucleotide molecule according to claim 1, wherein X₁ is selected from Phe and Ser, X₂ is selected from Ile and Thr, X₃ is selected from Asn and Ser and X₄ is selected from Thr and Ser.

15 3. A polynucleotide molecule according to claim 1 or 2, wherein the polynucleotide molecule encodes an NPY-Y7 receptor of human origin of about 408 amino acids in length.

20 4. A polynucleotide molecule according to claim 3, wherein the polynucleotide molecule encodes a human NPY-Y7 receptor having an amino acid sequence substantially corresponding to that shown as SEQ ID NO: 2.

25 5. A polynucleotide molecule according to claim 1 or 2, wherein the polynucleotide molecule encodes an NPY-Y7 receptor of murine origin of about 405 amino acids in length.

6. A polynucleotide molecule according to claim 5, wherein the polynucleotide molecule encodes a murine NPY-Y7 receptor having an amino acid sequence substantially corresponding to that shown as SEQ ID NO: 3.

30 7. A polynucleotide molecule encoding an NPY-Y7 receptor, wherein the polynucleotide molecule comprises a nucleotide sequence showing at least 90% homology to that shown at nucleotides 1 to 1903 or nucleotides 369 to 1592 of SEQ ID NO: 4 or any portion thereof encoding a functionally equivalent NPY-Y7 receptor fragment.

8. A polynucleotide molecule according to claim 7, wherein the polynucleotide molecule comprises a nucleotide sequence showing at least 95% homology to that shown at nucleotides 1 to 1903 or nucleotides 369 to 1592 of SEQ ID NO: 4 or any portion thereof encoding a functionally equivalent NPY-Y7 receptor fragment.

10. A polynucleotide molecule according to claim 7 or 8, wherein the polynucleotide molecule comprises a nucleotide sequence substantially corresponding to that shown at nucleotides 1 to 1903 or nucleotides 369 to 1592 of SEQ ID NO: 4 or any portion thereof encoding a functionally equivalent NPY-Y7 receptor fragment.

10. A plasmid or expression vector including a polynucleotide molecule according to any one of claims 1 to 9.

11. A host cell transformed with a polynucleotide molecule according to any one of claims 1 to 9 or a plasmid or expression vector according to claim 10.

12. A host cell according to claim 11, wherein the cell is a mammalian or insect cell.

13. A host cell according to claim 12, wherein the cell is a Chinese hamster ovary (CHO) cell, human embryonic kidney (HEK) 293 cell or an insect Sf9 cell.

14. A host cell according to any one of claims 11 to 13, wherein the cell expresses the NPY-Y7 receptor or functionally equivalent fragment thereof onto the cell's surface.

15. An NPY-Y7 receptor which is characterised by the N-terminal amino acid sequence:

MX₁X₂MX₃EKWD₄NSSE (SEQ ID NO:1),

wherein X_1 , X_2 , X_3 and X_4 are selected from codable amino acids, or a functionally equivalent fragment of said receptor, in a substantially pure form.

5 16. A receptor according to claim 15, wherein said receptor is a human receptor of about 408 amino acids.

10 17. A receptor according to claim 16, wherein said receptor has an amino acid sequence substantially corresponding to that shown as SEQ ID NO: 2.

15 18. A receptor according to claim 15, wherein said receptor is a murine receptor of about 405 amino acids.

20 19. A receptor according to claim 18, wherein the receptor has an amino acid sequence substantially corresponding to that shown as SEQ ID NO: 3.

25 20. An antibody or fragment thereof which specifically binds to an NPY-Y7 receptor according to ~~any one of claims 15 to 19~~.

30 21. A non-human animal transformed with a polynucleotide molecule according to any one of claims 1 to 9 or a plasmid or expression vector according to claim 10.

22. A method for detecting agonist or antagonist agents of an NPY-Y7 receptor, comprising contacting an NPY-Y7 receptor according to any one of claims 15 to 19 or a host cell transformed according to any one of claims 11 to 14, with a test agent under conditions enabling the activation of said receptor, and detecting an increase or decrease in the receptor activity.

35 23. An oligonucleotide or polynucleotide probe comprising a nucleotide sequence of 10 or more nucleotides, the probe comprising a nucleotide sequence such that the probe specifically hybridises to the polynucleotide molecule according to ~~any one of claims 1 to 9~~ under high stringency conditions.

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24. An antisense oligonucleotide or polynucleotide molecule comprising a nucleotide sequence capable of specifically hybridising to an mRNA molecule which encodes an NPY-Y7 receptor encoded by the polynucleotide molecule according to any one of claims 1 to 9, so as to prevent translation of the mRNA molecule.

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25. A method of producing NPY-Y7 receptors or functionally equivalent fragments thereof according to any one of claims 15 to 19, comprising culturing a host cell according to any one of claims 11 to 14 under conditions enabling the expression of NPY-Y7 receptors or functionally equivalent fragments thereof, and optionally recovering the receptors or functionally equivalent fragments thereof.

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